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PLANICHLOA (POACEAE, *CHLORIDOIDEAE, ERAGROSTIDEAE*) A NEW GRASS GENUS FROM NORTHERN QUEENSLAND

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Summary

***Planichloa nervilemma*, a new grass from northern Queensland, is described and its relationships are discussed.**

In the Queensland Herbarium there are specimens of a new chloridoid grass species, belonging to the tribe *Eragrostideae*, that have presented problems for some time as to their generic placement. They have been wrongly identified as known species of *Ectrosia* R.Br. and *Heterachne* Benth. at one time or another but closer examination shows the species to be somewhat intermediate between these genera in overall appearance. An essential difference, however, is the presence of 2 or 3 clearly defined lateral nerves on each side of the lemma; these 5–7-nerved lemmas contrast with the 3-nerved lemmas of *Ectrosia* and *Heterachne* and other ectrosioid genera accepted by Decker (1963).

The genera *Ectrosia* and *Heterachne* have been associated in classifications of Poaceae for some time (Bentham 1877; Hackel in Hubbard 1935; Hubbard 1935; Pilger 1956; Phillips 1982). Although originally classified as pooid genera by Bentham and Hackel they were later reclassified as chloridoid grasses (belonging to the tribe *Eragrostideae*) by Hubbard on the basis of their 3-nerved lemmas, the pooids generally having 5–7-nerved lemmas.

If the number of lemma nerves is accepted as the sole criterion for separating pooid and chloridoid genera, the unplaced grass would have to be considered pooid. However, it has been shown that a few chloridoid genera do possess lemmas with 5 or more nerves and they have been moved from the pooids to the chloridoids on the basis of their cytology and leaf anatomy, attributes demonstrated to be of great classificatory value in the study of grasses in recent times (Auquier 1963; Prat 1936, 1960). Examples are the genus *Drake-Brockmania* (Hubbard 1950; Phillips 1974) also in the *Eragrostideae* and the genus *Triodia* of the related tribe *Triodieae*. An examination of the leaf anatomy of the new grass shows it to be typically chloidoid*. Further chloridoid characters complementary to those of leaf anatomy and cytology are the coriaceous texture of the lemma and a tropical to subtropical distribution, both features of the new Queensland grass.

Other factors that need to be considered in relation to lemma nervation apart from nerve number are (a) nerve definition and (b) nerve spacing and I am grateful to Dr Surrey Jacobs (pers. comm.) for bringing to my attention the following points. The presence of clearly defined nerves 'usually simply means that a plant has Kranz anatomy which results in the nerves appearing more obvious–a useful distinction between Pooids and Chloridoids.' With respect to nerve spacing 'a common nerve patterning sequence in the chloridoid grasses is 9–7–5–3. Three nerves are very common and characteristic of the subfamily. However, a less common state is for the nerves to be grouped in three groups of three (9-nerved). From this state pairs of nerves are lost resulting in the 9–7–5–3 pattern. Several chloridoid species have lemmas with differing numbers of lemma nerves. For example in *Triodia* all of the 9–7–5–3 numbers can be found.'

*Abaxial leaf epidermis: Microhairs present, distal hairs tapering; mid intercostal cells with sinuous walls, lacking papillae; stomata with triangular subsidiary cells; silica bodies of the coastal region nodular. Transverse section of the leaf: Bundle sheaths double, the outer thin walled and rich in plastids, the inner thick walled and lacking plastids. Chlorenchyma weakly radiate with 1–2 cells between bundles. Bulliform cells occurring in discrete fan-shaped groups but not penetrating the leaf.

The lateral lemma nerves of the new grass are more or less grouped together **(Fig. 4)** as in some species of *Triodia*. However, the nerves of the latter species are more tightly and evenly grouped whereas the lemmas of the new grass have a greater interspace between the second and third nerves than between the third and fourth, when present. The situation in species of *Drake-Brockmania* with 5–7 nerves (Fig. 58 in Phillips 1974) is such that there is a more even distribution between the nerves although the first interspace is still greater than the second.

In view of the fact the new species cannot be placed satisfactorily in either *Ectrosia* or *Heterachne*, because of the 5–7-nerved lemma, it seems appropriate either to unite the whole complex or to accord this intermediate taxon generic rank. I feel it is better to opt for the latter choice as an enlarged genus would incorporate elements of too great a magnitude morphologically. Furthermore, the fairly open panicle of the new grass contrasts with the congested to contracted panicles found in most species of *Heterachne* and *Ectrosia*. The two exceptions to the latter condition are in *Ectrosia agrostoides* Benth. and *Heterachne baileyi* C.E. Hubbard. In the former the spikelets are much smaller and narrower in relation to their length than in the new grass and in the latter the spikelets are not awned.

Planichloa (*Chloridoideae, Eragrostideae*) B. Simon, **gen. nov.** affinis *Heterachnae* Benth. et *Ectrosiae* R.Br. sed lemmate 5–7-nervi, affinis *Drake-Brockmaniae* Stapf sed nervis lemmatum glabris differt. **Typus:** *P. nervilemma* B. Simon

Annual, culms erect, simple. Leaf blades linear, flat or folded; ligule a hair-fringed membrane. Inflorescence a contracted to open panicle with spikelets solitary and produced on secondary, or less often primary branches and disarticulating at maturity above the glumes that subsequently themselves fall off, leaving the short hairy pedicels and inflorescence branches. Spikelets markedly laterally compressed, narrowly ovate to ovate, consisting of 2–8 florets on a rigid non-fragmenting rachilla. Glumes lanceolate, acuminate, scaberulous on the margins and keel, usually mauve; lower glume 1-nerved, slightly shorter than the 3-nerved upper glume. Lemmas acute to acuminate to awned, longer awns towards the spikelet apex, rigid and flattened on a central scaberulous winged keel, 5–7-nerved, yellowish green and occasionally infused with mauve at the apices, with a zone of darker pigmentation associated with the lateral nerves, the margins scaberulous. Paleas comma-shaped, *ca* half the lemma length, hyaline with two winged keels, the margins scaberulous and coriaceous. Anthers 3, mauvish red; stigmas pale yellow, plumose; lodicules 2, cuneate. Caryopsis slightly laterally compressed with the embryo *ca* half as long; hilum basal, *ca* 1/4 the length of the caryopsis.

Species 1, from northern Queensland.

Planichloa nervilemma B. Simon, **sp. nov.**

Gramen annum, gracile, 12–40 cm altum. Culmi, folia et rami inflorescentiae pilis tuberculatis. Inflorescentia 6–12 cm × 1.5–3 cm; ramis primariis ad 8 mm longis; rami et axes scaberi triqueti. Spiculae 5–11 mm × 3–6 mm. Gluma inferna 2.5–4 mm longa; gluma superna 3–4.5 mm longa. Lemmata 3–6.5 mm longa (includens aristam, si praesentiam). Paleae 2–3 mm longae. **Typus:** Queensland, Cook District: *ca* 20 km SE of Laura on the Peninsular Development Road, 15°39′S, 144°33′E, 25 Apr 1983, *J.R. Clarkson* 4679 (holotypus BRI; isotypi CANB, DNA, K, NSW, PERTH, QRS).

A slender annual 12–40 cm tall. Culms terete, 1–3-noded; culms, leaf sheaths and blades and infloresence branches hispid with tubercle-based hairs 1–2 mm long, denser at the auricles. Leaf sheaths and blades with ribbed nerves, sheaths shorter than the culm internodes, blades 2–10 cm × 0.1–0.4 cm, acute to acuminate; ligule 0.2–0.3 mm long. Inflorescence 6–12 cm × 1.5–3 cm, the axis scabrous and triquetrous; primary branches to 8 mm long, scabrous and triquetrous; pedicels 0.5–1 mm long. Spikelets 5–11 mm × 3–6 mm. Lower glume 2.5–4 mm long; upper glume 3–4.5 mm long. Lemmas 3–6.5 mm long (including the awn if present). Paleas 2–3 mm long. Anthers *ca* 0.5 mm long, mauvish-red. Caryopsis *ca* 1.4 mm × 0.8 mm, smooth, yellowish-brown. **Figs 1–6.**

Etymology: The generic name alludes to the very flattened spikelets and the specific epithet to the lemmas with their sharply defined nerves.

The species is restricted to the Cook Pastoral District of northern Queensland and is found only on sandy soils usually with a high species diversity of annual grasses.

Fig. 1. Holotype of *Planichloa nervilemma.*

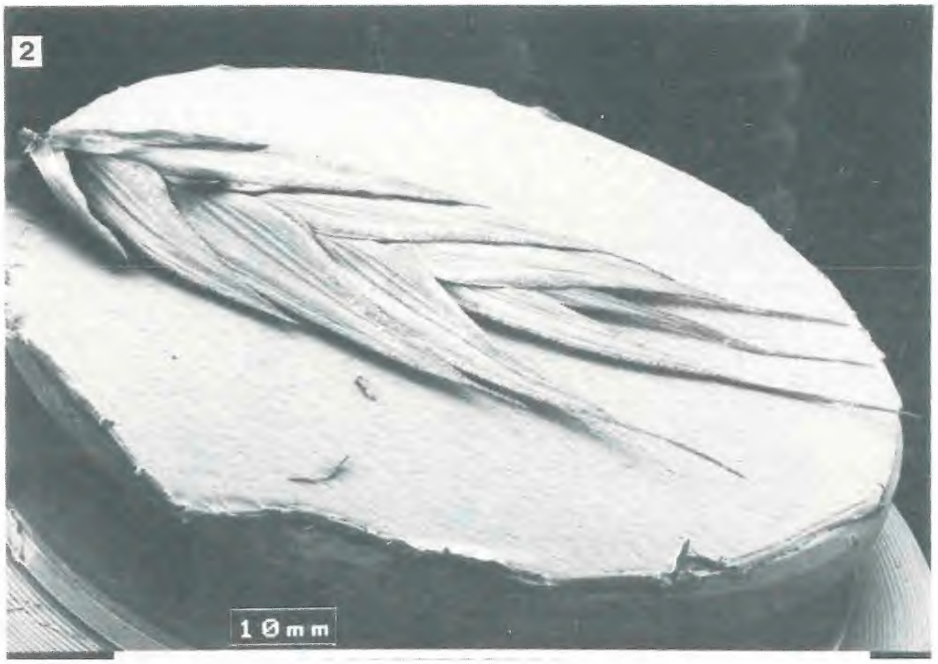

Fig. 2. *Planichloa nervilemma.* Spikelet viewed obliquely from the side (from Clarkson 4679).

Fig. 3. *Planichloa nervilemma.* Parts of a dissected spikelet showing a) glumes, b) basal lemma, c) apical lemma, d) palea and e) grain (from Clarkson 4679).

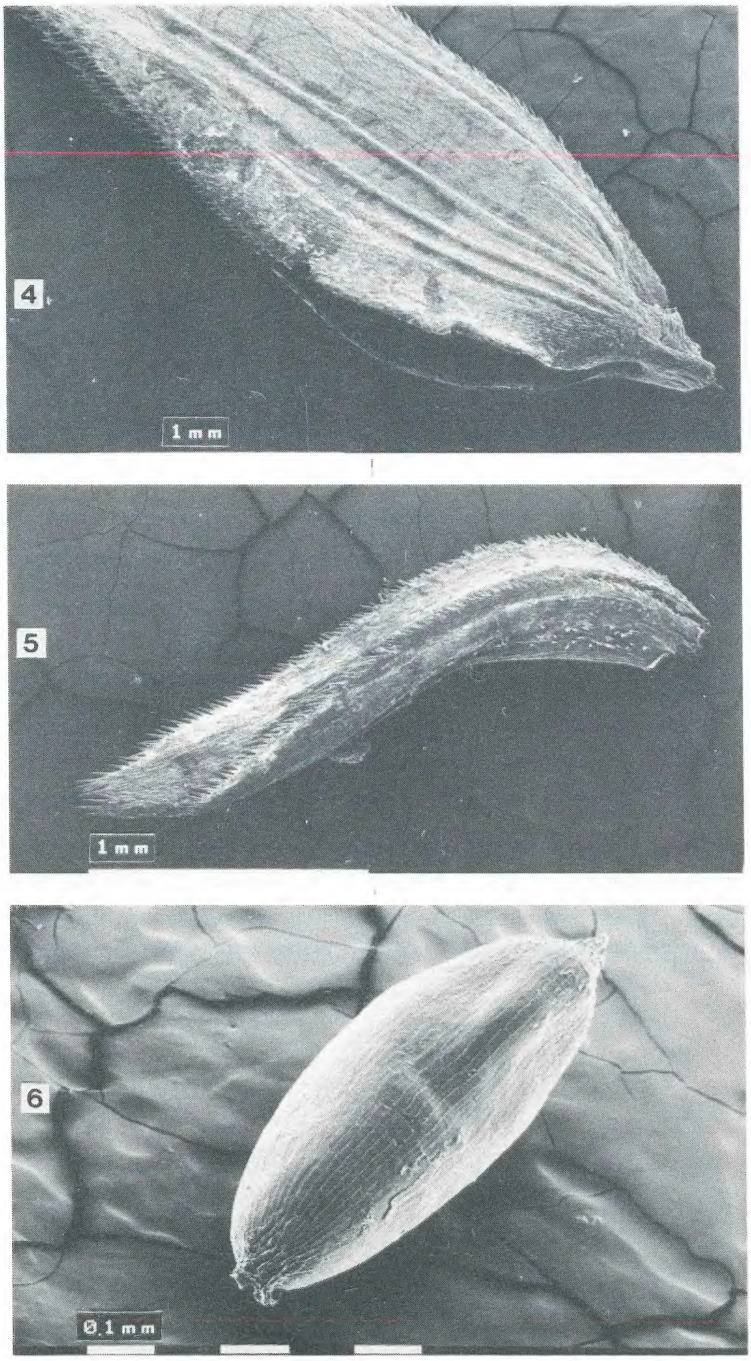

Fig. 4. *Planichloa nervilemma.* Lemma, side view (from Clarkson 4679).

Fig. 5. *Planichloa nervilemma.* Palea (from Clarkson 4679).

Fig. 6. *Planichloa nervilemma.* Grain (from Clarkson 4679).

In one of the sites where it was collected (30 km north of Mareeba) there were as many as 20 other grasses associated with it belonging to the genera *Schizachyrium, Thaumastochloa, Ectrosia, Eriachne, Pseudopogonatherum, Ischaemum, Chloris, Eragrostis, Sacciolepsis, Heterachne, Dactyloctenium* and *Paspalidium.*

Specimens examined (all BRI). **Queensland.** COOK DISTRICT: 102 km N of Laura, May 1967, *Symon* 4806 (also ADW, NT); near Cooktown, May 1970, *Blake* 23339; 1 km W of airport, Cooktown, Apr 1975, *McDonald* 1549 & *Batianoff*; near Little Laura R., May 1975, *Byrnes* 3278; *ca* 37 km SW of Cooktown, 15°42′S, 145°28′E, Apr 1973, *Henderson* 1626; 7 km NW of Nolan Creek on Chillagoe–Wrotham Park road, 16°45′S, 144°05′E, Mar 1980, *Simon* 3585 & *Clarkson* (also CANB, K, L, MBA, NSW); 30 km N of Mareeba on Mt Molloy road, 16°47′S, 145°22′E, May 1975, *Simon* 2654, *Clarkson & Staples* (also CANB, K).

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